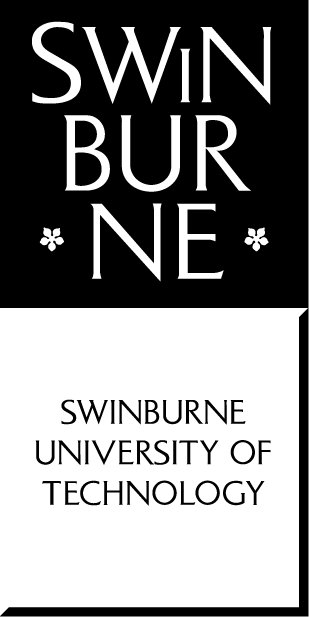
**School of Science, Computing and Engineering Technologies**

**COS10025**

**Technology in an Indigenous Context Project**

**Final project reflection report**

Project Title: Minions Group Project Presentation

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Student ID: 105341089

Date: 21/10/24

I wish to aknowlege the Wurundjeri people as the traditional owners of the land in which Melbourne is built on, and I exend my respect to their elders past, present and emerging.

**Declaration**

I declare that this report is my individual work. I have not copied from any other student’s work or from any other source except where due acknowledgment is made explicitly in the text, nor has any part of this submission been written for me by another person.

# Signature:

*Dylan Rodwell: 105341089*

## Part A:

### Introduction (Project Description)

This project focuses on providing a design solution for issues in the remote indigenous township of Yarrabah. The town of Yarrabah is located 10kms due east of Cairns, Queensland. At the time of the town’s latest census, it reported to have a population of 2,559 with over 97% of which identify as Aboriginal or Torres Strait Islander,[1] and is acknowledged as “Australia’s largest discreet Aboriginal community.”[2]

The town’s issue that the design ideas shown in our project aims to solve is contaminated drinking water. In the past, the town has experienced a lack of clean water caused by contaminated drinking water due to government oversights.[3] “Lead was found in water at Yarrabah Health Facility in May (2023).”[4] As well as having problems with the drinking water, the town also faces hardship through seasonal droughts and harsher climates.[5]

The group has provided five design ideas to help solve this issue:

Design idea 1 idea focuses on thoroughly analysing the town’s drinking water to identify more conclusively what the risks are and assist in the implementation of water filters in each household to hopefully prevent the risk of future contamination reaching the homes.

Design idea 2 proposes the instillation of rainwater collection systems in community members’ home to help relieve dependency on the town’s water system that has been unreliable in the past. The rainwater collection system aims to install a water system into homes that collects rainwater from the roof, removes debris and sediments before storing it in a water tank, and further purifying the water before being used in the home.

Design idea 3 focuses on the use of cheap handmade water filters as a cost-effective and easily accessible solution to filter drinking water in this remote community. The filter is made with layers of gravel, sand, activated charcoal and cloth to filter out smaller and smaller contaminants as the water travels down through the filter.

Design idea 4 aims to provide filtered clean water to the community using a public water storage tank. The design also uses various water quality sensors and digital databases to record purity, maintenance records and automatically notify the public and authorities of any contaminations found.

Lastly, design idea 5 acknowledges the hardships Yarrabah faces with seasonal droughts and aims to provide a solution using weirs. The design proposes installing weirs near the community that will store rainwater as an emergency water supply when the town faces a drought.

### Recommended option to proceed

After judging each design idea on how well they match the design principles, a ranking of how well each design performed was made.

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Figure [1] – Minions Group design idea justification rating graph

The solution that one of the best performing overall when compared to this criterion was design idea 4, Clean water access and warning system.

The reason this design was ranked so high was because of its effect on health and safety, its appropriateness to be implemented in Yarrabah and its superior sustainability.

Some of the benefits of the design include:

* The prevention of ingesting unclean water through warning the public via warning alerts and providing easy access to clean filtered drinking water for the community.
* Recording maintenance records and monitoring water quality virtually.
* Providing public access to all records and sensor readings.
  + Providing public access to everything also eliminates information regarding water contamination being kept hidden by authorities, similar to how they have in the past.
* Implementing automated and quick alerts through SMS and a public newsletter to spread information of contamination breaches fast and efficiently, reducing the risk of anybody ingesting the contaminant.
  + This encourages quick responses by authorities to prevent the contamination from spreading and informing residents not to drink the contaminated water.

This design was rated the most sustainable out of all the other design ideas. This is because of its extremely useful digital infrastructure that automatically monitors water for contaminants and recording all maintenance records, ensuring the system can be supported and maintained for a very long time with minimal effort.

This makes it ideal for Yarrabah’s remote community because it would be hard to implement a large team to check and maintain water sensors all over the town and would almost be impossible to detect contamination quick and effectively over the whole town.

Although it may be difficult to initially set up the needed infrastructure, once in place the design is easily maintainable and provides essential information fast and efficiently to the public. Overall, this design is extremely suitable for the remote town of Yarrabah, providing a large amount of benefit for the community while also requiring minimal maintenance and manpower to operate effectively.

## Part B: Project reflection

### Group Work Reflection

1. [This section is 1-2 pages. In this section, refer to events, activities (week 2 – week 11 group activities) and people specific to your group (i.e., avoid the use of 'we/he/she' in this discussion, instead refer to your group members by name, do not list general guides/recommendations for group work) & (**add evidences from weekly workshop team activities, weekly seminar reflections or assessments**)]
2. Describe the group work strategies/processes that worked for your team.

My group assigned roles to our members to help manage different aspects of the project. I (Dylan) was an editor along with Ali, Brendan and Truong. James was the meetings coordinator. Truong was the file sharer and submitter. Brendan was the team questioner to bring questions and concerns the group has to the tutor/convener. I was also the group mediator in case there was any conflicts or arguments.

This worked well in my team and made organising the group a lot easier.

1. Describe the group work strategies/processes that did not work for your team.

A strategy that my group lacked was promoting accountability. We had a problem where nobody would step up and decide what they would work on so we had to implement the member roles strategy which solved this issue and worked really well.

1. Describe what could be improved on next time you work in a group. This should be from your individual perspective, e.g., "not working with person X" is not something **you** can change.

For the next time I work in a group I would like to dedicate more time towards the assignments and take more initiative than I have in this group assignment.

1. Describe an event/action (add evidences) in your team (i.e., not just from you) that you think was outstanding with respect to each of:
   1. Team organisation
   2. Meetings

Our team meetings in the library have proved very beneficial with everybody attending to work on our project together.

* 1. Delivery of the project design ideas
  2. Delivery of the Innovation concept
  3. Delivery of the final presentation

### Individual Work Reflection

[This section is 1-2 pages. In this section, refer to events and work (week 2 – week 11 group activities) undertaken specifically by you. **add evidences from weekly workshop team activities, weekly seminar reflections or assessments**]

* Project tasks
  + Describe your tasks in the group project in each phase of the project (add evidences)
    - Phase 1 – Identifying township and the team problem
      * For identifying a township I investigated the town of Numbulwar, a small aboriginal community in the northern Territory.

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Figure [2] – Township evidence

* + - * For the team problem my task was helping to find articles and researching about the issue of Yarrabah lead contamination

A screenshot of a phone

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Figure [3] – Team problem evidence

* + - Phase 2 – Develop design ideas, Use design criteria to make standard design ideas, Analysing the benefits, impacts of each design idea
      * The design idea I came up with is collecting rainwater as a backup/alternative to using the community’s water system that has let them down and been contaminated in the past.

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Figure [4.1] – Design idea evidence part 1

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Figure [4.2] – Design idea evidence part 2

Diagram of a diagram of a house

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Figure [4.3] – Design idea diagram evidence

* + - Phase 3 – Desing justification (using score sheets) by scoring the six guidelines
      * X
    - Phase 4 – Analysing design average score sheets and improvising design ideas
* Contributions to the group
  + Describe how your efforts contributed to the whole group
    - I was assigned small tasks to do within all the group work to help balance the load between everybody and helped format and edit the group work before submission
  + Describe how you were involved in the teamwork environment
    - I would attend group meetings where the group and I would work on our tasks together and provide feedback to one another.
* Conclusion and recommendation
  + Conclude your achievement in accordance with the culturally suitable solution (you can pick either 1 or 2 design ideas that suit well)
    - The most culturally suitable design out of our ideas is design idea 3, the cheap homemade water filters. By using extremely common resources such as gravel, sand, charcoal and cloth, this makes the design extremely accessible for the people living in the remote town of Yarrabah. Although the design might not be the most effective solution we came up with, it is certainly the easiest to implement given its simple design and easy to acquire materials.
  + Recommend how you could further improve your design ideas within a team environment

## Part C: Unit Learning Outcomes (ULOs)

[This section is 1 - 3 pages. Pick at least 4 ULOs. Within those chosen 4 ULOs, under each ULO justify what you achieved in this unit. Some suggested activities or skills are provided for you to consider; however, you are welcome to go beyond these. It is expected that students respond using paragraphs (not just listing out dot points) and a framework such as STAR (Situation-Task-Action-Response) & **add evidences from weekly workshop team activities, weekly seminar reflections or assessments**]

1. Locate Indigenous knowledge systems and consider how they story the long history of technology, science, and engineering. (add evidences from weekly workshop team activities, weekly seminar reflections, assessments)
   1. Understanding and exploring Indigenous knowledge systems
   2. Ensure the project was undertaken in accordance with locating Indigenous knowledge systems (Technologies)
2. Explain the importance of, and find opportunities to, respectfully converge Western knowledge systems with Indigenous knowledge systems. (add evidences from weekly workshop team activities, weekly seminar reflections, assesments)
   1. Brainstorming the importance of Indigenous knowledge systems
   2. Understanding the Indigenous knowledge systems and uniting with Western knowledge systems
   3. Understanding and applying correct use of terminologies
3. Apply relevant knowledge of emerging technologies to a project within an Indigenous context taking into consideration and acknowledging Indigenous histories, worldviews, standpoints, and cultures. (add evidences from weekly workshop team activities, weekly seminar reflections, assessments)
   1. Analysing the challenges, needs and services for the remote Indigenous community
   2. Explore user access, affordability, appropriateness in relation to the design ideas
4. Function as an effective team member using project management tools and demonstrating professionalism and ethical behaviour. (add evidences from weekly workshop team activities, weekly seminar reflections, assessments)
   1. Attended team meetings, facilitator meetings and workshops
   2. Assisted in planning for the team
   3. Delivered work on time for the team
5. Communicate within teams, stakeholders using appropriate verbal, written, and technological approaches. (add evidences from weekly workshop team activities, weekly seminar reflections, assessments)
   1. Contributed to team meetings
   2. Engaged with facilitator meetings
   3. Proficient in verbal communication, both presentations and conversation
   4. Proficient in written communication, both reports and online interaction
   5. Made use of other tools (e.g., online brainstorming tools) to interact with others
6. Appreciate emerging technologies in a local, global and sustainable context (add evidences from weekly workshop team activities, weekly seminar reflections, assessments)
   1. Considered a culturally appropriate design idea
   2. Explored sustainable livelihoods in relation to the design idea

## References:

*[1]* Yarrabah Aboriginal Shire Council. (2023). Yarrabah Aboriginal Shire Council Annual Report 2022 -2023. <https://www.yarrabah.qld.gov.au/wp-content/uploads/2024/01/YASC_ANNUAL_REPORT_2023-FINAL.pdf>

*[2]* QLD Government. (n.d.-a). *Community*. Yarrabah Aboriginal Shire Council. <https://www.yarrabah.qld.gov.au/community/>

*[3]* Yarrabah Aboriginal Council. (2016). *Drinking water quality management plan*. Trove. <https://nla.gov.au/nla.obj-1203473299/view>

*[4]* QLD Government. (2023, June 7). Lead detected in water at Yarrabah educational facilities. Queensland Health. <https://www.health.qld.gov.au/newsroom/doh-media-releases/lead-detected-in-water-at-yarrabah-educational-facilities>

*[5]* QLD Government. (n.d.-b). Torres Strait and Cape York Regional Drought Resilience Plan 2022-2030 Torres Strait and Cape York. <https://www.agriculture.gov.au/sites/default/files/documents/torres-straight-cape-york-rdrp.pdf>

## Images:

*Figure [1]* Rodwell, D. (2024a). Minions Group design idea justification rating graph. In[*Minions Presentation*](https://liveswinburneeduau-my.sharepoint.com/personal/105340413_student_swin_edu_au/Documents/Minions%20Presentation%20.pptx?web=1).

*Figure [2]* Rodwell, D. (2024b). Township evidence. In[*Week 3 Work Minions*](https://liveswinburneeduau-my.sharepoint.com/personal/105340413_student_swin_edu_au/Documents/Week%203%20Work%20Minions.docx?web=1).

*Figure [3]* Rodwell, D. (2024b). Team problem evidence. In[*Week 4 Workshop Task Minions*](https://liveswinburneeduau-my.sharepoint.com/personal/105340413_student_swin_edu_au/Documents/Week%204%20Workshop%20Task%20Minions.docx?web=1).

*Figure [4.1]* Rodwell, D. (2024a). Design idea evidence part 1. In [*Week 5 Activities Minions*](https://liveswinburneeduau-my.sharepoint.com/personal/105340413_student_swin_edu_au/Documents/Week%205%20Activities%20Minions.docx?web=1).

*Figure [4.2]* Rodwell, D. (2024a). Design idea evidence part 2. In [*Week 5 Activities Minions*](https://liveswinburneeduau-my.sharepoint.com/personal/105340413_student_swin_edu_au/Documents/Week%205%20Activities%20Minions.docx?web=1).

*Figure [4.3]* Rodwell, D. (2024a). Design idea diagram evidence. In [*Week 5 Activities Minions*](https://liveswinburneeduau-my.sharepoint.com/personal/105340413_student_swin_edu_au/Documents/Week%205%20Activities%20Minions.docx?web=1).